

Like Walking Them to the Bus Stop, and Then They Still Miss the Bus

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Abstract

This qualitative descriptive study explored elementary teachers' virtual teaching experiences during the COVID-19 pandemic. Data were collected from four participants through semi-structured interviews and focus groups. An inductive content analysis approach was used to analyze the data. The findings of this study showed that the interactions between teachers and students in the virtual environment were limited. The learning outcomes of virtual teaching in the elementary classroom fell short due to the students' copy-and-paste culture, too much help from their parents, and an uncondusive learning environment at home. This study suggests that elementary teachers need professional development in pedagogical and technological knowledge to effectively teach in a virtual setting. Further, parental orientation is essential to make the parents cooperative and aware of their children's virtual learning.

Keywords: learning outcomes, teacher-student interactions, virtual teaching

1. Introduction

The COVID-19 pandemic brought significant changes into everyone's lives, impacting people's health, economics, social lives, and so on. Education is not an exception, and schools were closed starting in spring 2020 in the United States (Hamilton et al., 2020). Nearly 60 million K-12 students in the United States were out of the physical classroom due to school closures (Masonbrink & Hurley, 2020). The unprecedented disruption in the education system caused significant changes in teaching and learning. Students and teachers were in their homes, and classes became virtual to continue education. Therefore, appropriate electronic devices (e.g., laptops) and high-speed internet connections were essential for virtual classes, but these necessary requirements were not available for many students. Vogels et al. (2020) said that during the COVID-19 pandemic, about half of U.S. families were worried about having access to highspeed internet and appropriate electronic devices for their children's virtual classes as they could not afford them. These parents were concerned about

their children's education. According to Vogels et al. (2020), many children ended up using their parents' cell phones for their virtual classes.

This sudden switch to virtual teaching and learning also created significant issues for teachers. They had no choice but to teach their students in a virtual space, often without any training or preparation (Trust & Whalen, 2020). As such, there were pedagogical, technological, and organizational challenges for the teachers and schools concerning conducting classes virtually (Shamir-Inbal & Blau, 2021). The teachers needed sufficient technological and pedagogical skills as virtual teaching is very different than face-to-face teaching (Albrahim, 2020). Most teachers were not prepared or trained to meet the emergency needs of virtual teaching (Trust & Whalen, 2020). In that situation, the schools and teachers took emergency initiatives to deliver classroom materials and content to students using email and even mail (Black et al., 2021). Then they started virtual teaching. Many school districts provided laptops to the students on which e-books and online materials were installed. Thus, the schools and the teachers deserve high praise for their initiatives and rapid responses (Black et al., 2021).

However, the home environment of teachers and students is not always conducive for teaching and learning. For example, there might be distractions like noise from other family members. On the other hand, students may be getting extra support as their parents become co-teachers with the official teachers, especially for elementary school students who often need help from adults (Uddin, 2021). Bhamani et al. (2020) found that during the COVID-19 pandemic, parents became home tutors, and frequent parent-teacher communication boosted Pakistani elementary students' academic success. Bubb and Jones (2020) found that Norwegian elementary school students achieved better learning progress in virtual teaching-learning during the COVID-19 pandemic. Novianti and Garzia (2020) showed the same in Indonesia; elementary students' parental engagement in their online learning during the COVID-19 brought a positive result to students' report cards. Lee et al. (2021) found that parents in the Midwestern United States gave more time and mental support to their children during online learning, which helped the students to learn better during the pandemic. However, the question remains: what were the learning outcomes of elementary school students on the east coast of the United States during COVID-19? Were the learning outcomes the same as in-person teaching and learning? How did teachers experience the virtual teaching and learning environment?

This study aimed to explore the experience of virtual teaching and learning in elementary classrooms from the teachers' perspectives in an eastern state of the U.S. during COVID-19. This study also attempted to explain the learning outcomes of virtual teaching. The findings of this study will provide a guideline to school authorities, teachers, and parents about their roles in dealing with children's education in a virtual setting.

2. Theoretical Framework

Looking for a virtual teaching-related theory that could suit this study, I researched several theories such as Constructivism, Behaviorism, Cognitivism, Ecological System Theory, Social Learning Theory, and Environmental Learning Theory. However, the absence of the use of technology in those theories meant that none fit entirely. This study aimed to explore

the experience of virtual teaching and learning in an elementary school. The virtual classes for the elementary school students and teachers were new due to the sudden and emergency shifting from face-to-face to virtual, and so I framed a theory for this study as teaching and learning in the virtual learning environment.

Virtual Learning Theory

In the virtual teaching-learning environment, an appropriate electronic device (e.g., a computer) along with the internet are the only means of interaction. Interactions between teachers and students, students and students, and students and the learning content only happen via electronic devices. Teachers conduct classes synchronously and/or asynchronously so that the students can achieve the desired learning outcomes. In this type of environment, students and teachers are both at their respective homes, and the home environment has an influence on teaching and learning. The quality of electronic devices, the speed of the internet, and technical issues can also impact teaching and learning. In addition, these factors affect the interactions between teachers and students, students and students, and students and content.

Thus, I have developed the Virtual Learning Theory. This theory focuses on teaching and learning virtually, using electronic devices and the internet synchronously and/or asynchronously. This theory also focuses on the home environment (of both teacher and student) and the technology as they impact virtual teaching and learning. I use this theory as a lens to understand how teachers and students interact virtually during teaching and learning. This theory also helps explain the learning outcomes in the virtual environment and how the technology and home environment affect teaching and learning.

Research Question

What virtual teaching experience did elementary teachers have during the COVID-19 pandemic, and what were the learning outcomes for their students?

3. Research Method

Methodology

Moser and Korstjens (2017) defined qualitative study as the in-depth and holistic investigation of a phenomenon to understand the reality and experiences of the studied individuals. Willig (2013) said that qualitative research explored how studied people made sense of their world and their experiences. The focus of this study is to explore the experience of virtual teaching in the elementary classroom from the teachers' perspectives. This study also seeks to understand the learning outcomes in a virtual environment. Thus, a qualitative approach is best suited to this study.

Choosing from among the various qualitative approaches, a qualitative descriptive approach comprehensively summarizes studied individuals' experiences of a specific event of everyday life and provides a straightforward description of a studied phenomenon (Lambert & Lambert, 2012). Magilvy and Thomas (2009) defined a qualitative descriptive study as a qualitative approach that described the experience of the studied individual candidly, where a sample

size might be three to five. Colorafi and Evans (2016) said that a qualitative descriptive approach summarized the studied individuals' everyday phenomenon across the discipline. This study focuses on exploring elementary teachers' everyday experiences of virtual teaching. As such, the qualitative descriptive approach was used in this study.

Participants

The study took place during the COVID-19 school closure in a suburban school district on the east coast of the United States. The school district did not process any IRB submissions during that period, and thus I could not recruit in-service elementary school teachers as participants. I then considered elementary pre-service teachers who were in their Phase II student-teaching as participants because they had been practicing teaching since their Phase I student-teaching. In Phase II student-teaching, they practiced virtual teaching every school day from 8:30 am to 3:30 pm. Their student teaching entailed following their mentors, who were in-service elementary teachers. The participants and their mentors taught the same students simultaneously. Thus, the participants' virtual teaching experiences were not significantly different than their mentors' experiences.

I got IRB approval from a university on the east coast of the United States, and four elementary student teachers from the university's elementary teacher education program agreed to participate. The participants were Tonya, Brea, Kelly, and Josh. These are their pseudonyms. Tonya, Brea, and Josh were in Oishy Elementary School (pseudonym), and Kelly was in Hrida Elementary School (pseudonym). Tonya was placed in a fourth-grade class, Brea was in a second-grade class, and Kelly and Josh were in third grade.

Data Collection

Four semi-structured (DeJonckheere & Vaughn, 2019) individual interviews and two focus groups were conducted via Zoom to collect non-numerical data from the participants. Each individual interview lasted about 30-35 minutes, and each focus group was over an hour. The interview questions and supplemental follow-up questions were flexible. The participants provided their feelings, thoughts, understanding, and experiences. I recorded each interview and focus group on Zoom under my account, and the system transcribed the interviews.

Data Analysis

To analyze data, I collected the transcriptions from Zoom and preserved them in a folder on my desktop and then deleted the record from Zoom. Then I analyzed the data using an inductive content analysis approach (Bengtsson, 2016). First, I read the transcript twice, and then I used the four content analysis steps to analyze and finalize themes. The four steps are: decontextualization (creating initial code after inferring meaning), recontextualization (comparing the codes with the original data), categorization (identifying similar codes), and completion (finalizing themes). The themes that emerged are as follows:

1. Lack of teacher-student interactions
2. Few learning outcomes

3. Excessive help from parents
4. Unsupportive home environment
5. Difficulty adjusting to face-to-face

Positionality

In qualitative research, a researcher's personal values, experiences, and beliefs influence the data collection, data analysis, and research reporting (Dean et al., 2018). I have nine years of experience as a high school math teacher and 11 years as an administrator. In addition, I was a K-12 professional developer. Currently, I teach in teacher education programs. I was aware of my personal biases and used my experiences as a resource while collecting, analyzing, and reporting data.

4. Findings

Lack of Teacher-Student Interactions

My participants found that, in virtual teaching, there was minimal teacher-student interactions. The students kept their cameras off, and they were very often muted. As a result, the teachers could not get responses from their students. The teacher often did not even know what the students were doing.

Tonya said that she did not have enough interaction with her students. When students were off-camera and muted, she did not get any response from them. She found that there was little interaction with her students in the virtual environment. She said,

If you just don't know what they [students] are doing like their cameras are off, they take themselves muted and I actually question to somebody and then somebody else calls out. It's just getting really frustrated. Like they are not listening.

Brea shared the same experience, saying that students kept their cameras off. As a result, she could not know who was participating and who was not. She could not guess students' activities because she could not observe their body language, which would be possible in a face-to-face class. She added,

We fail to engage students in learning. There're off-cameras we can't really know who is learning, who is engaged. If someone participates, then who is participating? We don't know if they are confused and what are they confused about. When we are in the classroom, their body language tells us when a student needs help.

Kelly echoed Tonya and Brea and said that having the cameras off and microphones muted were the most significant issues to interacting with the students. All of her efforts to make the class interactive and fun failed as her students were not responsive:

I create my PowerPoint to make the class interactive and fun. I stay up late night to make sure the PowerPoint looks pretty, and my virtual classroom looks good. When I teach, I make sure that they can hear me and every information I repeat for them. I write answers within the presentation. Unfortunately, you can't say that they are

listening to you, or what you are discussing as their cameras are off.

Josh's experiences were as same as the other participants. He shared his frustration about controlling students and interacting with them virtually. He said,

Controlling the classroom is a challenge because I have less control virtually over the class. They don't turn their mic and camera on so, I don't know what they are doing. But you see them chatting to people in the chat box.

Summary Statement

All four participants shared the same experiences; specifically, they did not have interactions with their students in the virtual environment. The students kept their cameras and microphones off, and the student-teachers were not able to have a connection with them. In that situation, the participants did not know whether their students were listening to them or not.

Few Learning Outcomes

The participants shared that the students were not learning virtually; they were merely copying and pasting their answers from online resources. The students did not participate in learning activities and did not even listen to their teachers. Tonya compared students' learning inactivity to suicide. She said,

I understand we have to stay at home for COVID. But it is not working for the kids. The kids are not doing any work at all. It's like literally they are committing suicide. They don't turn in anything, but the school administration says pass them anyway. I say like, "Hey. What are you going to accomplish by passing them?"

Tonya also shared her experience and feeling about children's learning during COVID. She shared how the online culture was negatively affecting their learning. She said,

They [students] don't want to learn. They just copy and paste from Google. We are giving them everything. Like walking them to the bus stop, and then they still miss the bus. It's like we give them every piece of information, and they still just don't get it.

Kelly agreed with Tonya that the kids were not learning in the virtual classroom. She was upset that the students were not learning the content she was trying to give them. She said,

I agree with Tonya that you walk them to the bus stop, and [they] still miss the bus. It makes me feel like I am the bad teacher at the end of the day, or I am not doing my job. Actually, they are not doing what they need to do to grasp the content.

Brea added that online learning is hurting students' writing skills as they are not using paper and pencil. She said,

I feel like they [students] are missing out those foundational writing skills because they've spent so much time on a computer where they don't have to write because all of their assignments are online. It's just like they are missing out learning how to write.

Josh said that students were getting full points for their homework, but they could not perform in front of him. These students were not learning anything from the class. He said,

What I do is, I asked who made 100 on their homework online. Then I ask them the same questions. When they can't perform, that's how I know that they are not learning. They just copy and paste their assignment from online to online. So, I believe online holds a student back. What's going to happen, they leave the class from my grade to the next grade without picking up anything.

Summary Statement

The participants expressed how the students were not learning in virtual classes. The students developed a “copy and paste” culture as all answers were available online. They did not need to practice handwriting, and they were missing learning how to handwrite.

Excessive Help from Parents

Due to COVID-19, the schools were closed, and the students were participating in learning activities from home. The students were in touch with their parents, and the parents took advantage of raising their children's test scores. The participants shared how parents' excessive assistance on their children's schoolwork negatively affected students' learning.

Tonya said that parents were doing the classwork and homework for their children. She said, “*Like some parents are literally doing their kids' homework. I have a kid in my class like she cannot read at all. She is getting all 'A' like 100 percent in all of her assignments.*”

Brea said that parents should help their kids when necessary as they are at home, but the parents are lending undue help and completing all the students' work. She said,

Sometimes it's good that parents are feeding kids answers, especially for those students who needs support. But I feel like some parents are overbearing. They are helping their kids all the time and not allowing them to learn and how to learn those processes.

She added that parents' extra help created an issue for the students and the teachers. The teachers did not get an accurate representation of the learning status of the students. Brea said,

I have a kid with special needs, and we know her. She is doing too well in all of her schoolwork. So, when her dad is doing her entire work, we are not getting the accurate data and cannot assess what she really needs. We understand she needs extra support from an adult. But when we don't know the real performance, you can't setup our next steps. These parents are babysitters or force feeding, making our job harder.

Kelly also shared the same experience as Tonya and Brea about parents' excessive help. She also said that the parents did all of their kids' work and even took their tests. Kelly said that the parents were destroying kids' education by doing work for them. She said,

I saw multiple times parents or family members literally stand by the students when they were doing something like a test. They [parents] literally help them [students] or they do it for them. It's just like, the mom or dad is taking the test right now. It is so confused that they [students] get their test score that does not match what they got in other tests when dad is not here.

Similarly, Josh shared a similar experience and said that parents were doing all work for the students. As a result, the teacher did not get actual data. He added that parents' fulsome help was causing students to lag behind in their learning. He said,

I encounter parents who do their children's work, they [parents] just make all of my data inaccurate. Because, I am not going to have the actual judgement what the students have learned looking at their test scores, their homework, and my formal and informal assessment. You parent makes my data invalid. You are doing your kid's math classwork and homework. You are doing his English assignment, and he is struggling reading in front of me. I teach him how to read, and you are not allowing me to do my job.

Summary Statement

The participants shared their experiences and feelings about parents' excessive help in completing students' homework and classwork. As a result, the students were getting 100% for their work, but they could not perform in front of the teachers. The participants said their test data was inaccurate as it did not reflect the actual learning outcomes.

Unsupportive Home Environment

Students were joining classes online from their houses, but their home environments were not always student friendly. The participants shared their experiences of what they noticed while teaching. Tonya said that some of her students' home environment was frustrating for her:

It's very frustrating. My kids are babysitting their siblings or their siblings are yelling in the background. Whenever they turn on their mic you can hear their mom is cursing or shouting. It's a lot and it's not a learning environment.

Brea shared about two of her kids whose parents took care of them alternatively. She shared that the students were not feeling good about their family environment:

You see some kids in a funk mood because where they are, it's like really loud or they're doing some sorts of things. I have two kids in my class. Their parents alternate them every two days. These two students will be at one parent's house for two days and then in another parent's house with other kids. So, definitely, they don't have an environment. They are not in an environment conducive to learning.

Like Brea, Kelly shared that one of her students was attentive but did not participate due to her unconducive home environment, and she felt embarrassed by that. Kelly said,

I have one student and I can tell you she wants to learn. She wants to be involved and her home environment is not very conducive. Her parents are very loud. You see her

younger brother runs through the room, jumps on the couch. She always turns off her camera and tries to keep herself muted. I think she feels embarrassed.

Josh also was not satisfied with his students' home environment. He shared his experience of how the students' home environment negatively affected his class environment. Josh said,

Teaching online is sometimes difficult for me versus being in the classroom. While I teach, I hear someone with a more powerful and loud voice sitting next to my kids. It confuses me and my class. I don't think that that's a fair learning environment.

Summary Statement

The participants shared their experiences of how uncondusive their students' home environment was for learning. Their students wanted to learn, but their distractive home environments were a significant challenge for them to concentrate.

Difficulty Adjusting to Face-to-Face

The participants were teaching online, and they would teach face-to-face in the near future, so they shared their thoughts about face-to-face classes. They stated what challenges they thought the teachers and students might face. Tonya said that going back to paper and pencil might be an issue for the students. She said,

When kids will go back to the class, there is gonna be a wakeup call. Trying to get these kids back into the swing of things when it's time to get into the classroom because most schools are not able to have a device for each student. I feel like it's going to be really hard for them to transition from being on a computer 24/7 to going back to pencil and paper.

Brea raised the idea of behavioral and social issues. She shared her thoughts that adjusting face-to-face might be a challenge as the students had become used to online. She said,

Like behavior, I feel like that's going to be a really big challenge because they are so used to being at home and sitting on their bed while they are learning. They are not used to sitting in the chair and desk for eight hours a day. They are not able to touch everything, and touch each other, hug and play like normal. I really wonder how it's going to look like, how school is going to be structured. They are spending so much time in this virtual space and to the point where they aren't going to know how to interact in real life.

Kelly shared almost the same thoughts as Brea about how adjusting face-to-face might be a challenge for everyone. She said,

This is a completely different learning environment that they had to get used to. I just think that they have lost motivation in this virtual learning environment. I think that's really going to be very different for everybody to trying to get them back in the school and adjusting what they are supposed to learn virtually and trying to get them apply in the classroom again.

Josh shared his thoughts about online teaching versus face-to-face teaching. He said that teachers needed to adjust with school supplies and classroom management that were not needed online. He said,

Meeting face-to-face is different. Getting ready and driving every day versus clicking on a button on your computer. That's time management. We all have to adjust. Coming to school is going to be a big change. Supply will also be a big thing for all teachers. Printing all paper versus post something online. Grading is also easier than grading a physical paper. When you have physical documents, you have to organize them and that's gonna be a quite challenge.

Summary Statement

The participants were anxious about face-to-face teaching. They shared their anxiety regarding how the students and teachers would cope with the classroom setting. They shared that, students as well as teachers, had grown used to online. The face-to-face learning environment needed to be adjusted regarding many things such as classroom management, school supplies, and students' behavior.

5. Discussion

This study aimed to explore elementary teachers' virtual teaching experiences and the learning outcomes from their teaching. The four elementary student teachers who acted as participants were in their Phase II of student-teaching. They taught virtually and practiced their teaching under the mentorship of in-service elementary teachers. They and their mentors taught the same students at the same time. The participants' experiences showed that virtual teaching and learning for elementary teachers and students were not practical nor effective.

Interactions between teachers and students is an essential part of teaching and learning. Harper (2018) said that virtual teaching and learning increased the opportunity for elementary students to cooperate with their teachers and that teachers had more options to implement student-centered learning. However, my participants had the opposite experience. They shared that the interactions between them and their students did not meet their expectations. The students generally stayed off-camera and muted. The students did not even respond to the teachers' calling on them. The students did not cooperate with the teachers, and the teachers could not make their classes student-centered. The participants said they tried to make the class interactive and productive, but they could not do it as their students did not participate in the class activities. Kelly said, *"Unfortunately, you can't say that they are listening to you or what they are doing as their cameras are off."*

Achieving learning outcomes is the primary focus of teaching and learning. Sutarto et al. (2020) said that in online teaching and learning during the COVID-19 pandemic, teachers could employ various strategies to enhance students' interest in learning and could engage them in learning activities to achieve desired learning outcomes. My study found that the students were not achieving learning outcomes and the participants were worried about student performance. According to the participants, the students were just copying their answers from Google and submitting them, and school authorities asked the teachers to pass

them anyway. As Josh said, *“They leave the class from my grade to the next grade without picking up anything.”* The participants shared over and over that they were trying to teach students, but the students were not learning. Tonya said, *“They don’t learn. Like walking them to the bus stop, and they still miss the bus.”*

In addition to the “copy and paste culture,” parents’ excessive help to the students was another reason for not achieving learning outcomes. As the students were at their home, they also got too much help from their parents. According to the participants, the parents did students’ homework, classwork, and even took tests. Kelly said, *“I saw multiple times parents or family members literally stand by the students when they were doing something like a test.”* The participants understood the necessity of the help from an adult for an elementary school student, especially those who need support, but doing all work for a student to raise their score was improper and gave the teachers a wrong message. Brea said,

I have a kid with special needs, and we know her. She is doing too well in all of her schoolwork. We understand she needs extra support from an adult. But when we don’t know the actual learning outcomes because parents are babysitters or force feeding, making our job harder.

Additionally, this study found that students’ home environment was uncondusive for learning, and it was another reason students were not engaged in learning activities. Research states that students’ home learning environment strongly affects their academic development (Lehri et al., 2020; Tamis-LeMonda et al., 2019). My participants found that their students’ home environment disrupted their learning activities. For example, Tonya said that she saw her students taking care of their younger siblings and even feeding them during class time. Kelly shared that she had a gifted student in her class and that the student always wanted to participate. However, whenever that student unmuted herself, Kelly heard loud voices and shouting. Kelly also saw that that student’s siblings were running, crying, and jumping beside that student. Kelly thought that the student kept herself off-camera and muted because she felt embarrassed of her home environment.

Overall, the virtual teaching practices were not satisfactory experiences for the participants. They were worried about their future face-to-face classes. They shared that their students became used to playing with siblings at home and having online advantages like getting readymade answers. These students might not want to go back to paper and pencil, and if they do, they might struggle to cope with them. Tonya said, *“When kids will go back to class, there is gonna be a wake-up call.”* The participants were also anxious about their students’ behavioral issues in the face-to-face classroom. According to the participants, students’ behavioral management might be a challenge for the teacher in the face-to-face classroom. Josh said, *“This is a completely different learning environment that they had to get used to.”* Kelly noted that many students lost their motivation to learn in the virtual learning environment. Therefore, the participants did not encounter a good virtual teaching experience, and, for the elementary students, the learning outcomes fell short.

6. Conclusion

In any classroom, three types of interactions are essential. These are interactions between teacher and student, student and student, and student and learning materials. The interaction between teachers and students is the most important one, and it promotes the two other interactions. The teacher and student interaction is also a medium to form a relationship between the teachers and the students (Pennings et al., 2018). This interaction is the only means of virtually communicating between the teachers and students. My study found that the interactions between teacher and student in virtual teaching were minimal. The participants could not engage their students in the class. This study found that the participants tried to make their class interactive, but they could not. According to them, their students' home environments, tendency to get readymade answers from online resources, and excessive parental help caused them to not be engaged in learning activities during class. As the students got used to getting scores of 100% due to the supports mentioned above, they leaned on those resources rather than their teachers.

Teacher and student interactions do not happen naturally. A teacher's interpersonal skills are integral to developing teacher and student interactions in the classroom (Pennings & Hollenstein, 2019). The participants of this study were not in-service teachers. They did not have any training or even orientation on how to develop interpersonal skills and engage students in online teaching, especially for elementary students. Their lack of professional learning was a challenge for them. Josh confessed that managing students virtually was a significant challenge for him as he had limited control over them. According to Martin and Bolliger (2018), during online classes, interactions between teacher and student increase student satisfaction, reduce their sense of isolation, and motivate them in learning activities. Unfortunately, in my study, the elementary student teachers could not engage their students in learning activities and could not encourage them to learn due to their lack of knowledge and skills of online teaching.

Teachers' technological and pedagogical competency is essential for improving students' learning outcomes in the virtual learning environment (Susanto et al., 2020). The participants followed their mentors every day, but it seems that their mentor teachers also were untrained for virtual teaching. If their mentors knew techniques how to engage the elementary students in virtual learning, the mentors would have employed them in the class, and the participants would have learned from the mentors. However, that was not the case. Therefore, elementary in-service teachers need to be professionally trained in online teaching. School authorities can arrange professional development programs for in-service teachers and their student teachers. Besides, the teacher education department should arrange orientations for their student teachers before sending them to student teaching.

This study also found that elementary students' home environments were not favorable for them to be engaged in learning activities. The participants said that some students were eager to contribute to the class activities, but they could not, due to their home environment. As a result, this study can say that the parents could not make the home environment conducive for learning virtually for their children. Some parents even helped the students to raise their

scores. These practices also influenced the students to not participate in-class activities. Consequently, parents also need orientation about dealing with their children's virtual learning. School authorities could arrange virtual meetings for the parents and guide them.

7. Limitations

There are several limitations of this study. First, the data is one-sided, only from the student-teachers. I depended on their statements and could not verify them from other sources. Second, the absence of mentor teachers was a drawback of this study. The mentors could have given more data regarding virtual teaching policies and practices. Third, the lack of class observation is also a shortcoming of this study. A class observation could have given a better picture of the virtual teaching in the elementary classroom. Overall, an ethnography would get deep into the culture of virtual teaching for elementary students and teachers.

8. Scope for Future Research

The findings of this study have opened opportunities for other studies. A few examples are as follows: a quantitative descriptive study examining the level of in-service elementary teachers' pedagogical and technological knowledge in regards to virtual teaching; a qualitative case study exploring the mentoring policies and practices for elementary school student teachers; a quasi-experimental study examining elementary student teachers' classroom management skills before and after their student teaching; and an ethnography exploring the virtual teaching culture at the elementary school level.

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Appendix A**Individual Interview Questions for Post-Lesson Experience**

1. What lesson did you teach today?
2. How did you feel after conducting the class?
3. What was it like to teach by yourself?
4. Do you feel like you are successful in that particular lesson? Why/why not?
5. Why did/did not your lesson plan work?
6. What are the challenges you face in conducting this lesson?
7. How did you overcome these challenges?
8. How did you evaluate your performance?
9. What feedback have you got from the students?
10. What experiences helped you prepare for that lesson?
11. How did your mentor teacher help you?
12. What feedback have you got from your mentor teacher?
13. What feedback have you got from your university supervisor?
14. How did your math methods courses help you in this lesson? Did the math courses have an effect?
15. What steps will you take to make your next solo teaching experience better?
16. What was your biggest aha moment of that teaching?
17. What would you do differently if you would conduct this class face to face?

Appendix B

Last Focus Group Interview Questions

1. Please share your overall virtual student teaching experience
2. How does your student teaching meet/not meet your expectation and why?
3. What is your biggest takeaway from your student teaching?
4. What differences did you identify between your face-to-face (Phase I) and virtual (Phase II) student teaching?
5. What suggestions do you have for the department or host school for the future student teaching?

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